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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,478	11/28/2003	Thomas M. Moy	20435-00144-US01	8017

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EXAMINER	
MCCLENDON, SANZA L	
ART UNIT	**PAPER NUMBER**
1711	
MAIL DATE	**DELIVERY MODE**
05/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,478	MOY ET AL.	
	Examiner	Art Unit	
	Sanza L. McClendon	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17,18 and 20-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17,18 and 20-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the Amendment received on February 21, 2007, the examiner has carefully considered the amendments. The examiner acknowledges the cancellation of claims 1-16 and 19 and the addition of new claims 20-31.

Response to Arguments

2. Applicant's arguments filed February 21, 2007 have been fully considered but they are not persuasive. Applicant appears to be relying on the limitation of "with a curing, wherein said layer of said curable thiol-ene formulation has a thickness of about 3 to 4 mils" in the method of claim 1 to overcome the combination of Nerad et al in view of Hagstrom et al (5,875,693). However, this is not persuasive because, while Nerad et al teaches cured thickness in the range 5 to 25 microns, one of ordinary skill in the art would have found it obvious to make layers of any thickness using the combination of Nerad et al and Hagstrom et al depending of the end application and/or as a design choice. Regarding new claim 31, while Nerad et al does not expressly teach using dithiols as the polyfunctional, the examiner deems that one of ordinary skill in the art using the combination of Nerad et al and Hagstrom et al would have found it obvious to use a di-thiol compound instead of a tri- or higher functional thiol compound to reduce the crosslink density of the crosslinked matrix for tailoring the physical properties of the final product depending on the final end use of said formulation.

The rejection of claims 1 and 6-19 under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as being obvious over Nerad et al is hereby withdrawn in view of applicant's cancellation of said claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nerad et al (5,641,426) in view of Hagstrom et al (5,578,693).

Nerad et al teaches vinyl-ether-based matrix materials for optical responsive films in light modulating devices. The cured matrix film includes the reaction product of an isotropic polymerizable material that includes at least one vinyl-ether and at least one multi-functional reactant other than a vinyl-ether. The vinyl-ether compound may be a multi-functional vinyl-ether, a mono-functional vinyl-ether or a combination of both, wherein vinyl-ether functional urethane oligomers is discloses as a usable vinyl-ether compound–see column 2, line 21-22 and claims 6-10. Said multi-functional reactant other than a vinyl-ether can be a thiol functional compound, such as those having the formula found in column 6, lines 24-40. These are esters of polyhydroxy compounds, such as glycerol or pentaerythritol, wherein compound like trimethylolpropane tris (3-mercaptopropionate) and pentaerythritol tetra (3-mercaptionpropionate) is taught. See the remaining rejection in the above paragraph 6.

Nerad et al does not expressly teach the reaction components used to prepare the vinyl-ether terminated polyurethane.

Hagstrom et al teaches vinyl-ether terminated oligomers are well known in the art. The reference teaches making multi-functional terminally unsaturated urethane oligomers, wherein said terminal ends can be acrylate or vinyl-ether. Said urethane oligomers are obtained by reacting at least one diisocyanate with at least one polyol to form a isocyanate terminated oligomer, reacting said prepared oligomer with at least hydroxyl-terminated acrylate or vinyl-ether to form a terminally unsaturated urethane oligomer ad then reacting the remaining isocyanate groups with at least one alkoxylated polyhydric alcohol. Said polyols used in the first reaction step can be a polyether polyol or a polyester polyol having an equivalent weight of up to 2000. Said diisocyanates can be found in column 3, lines 14-21, wherein Desmodur W, IDPI, and TMDI are disclosed. Said urethane oligomers formed having molecular weight in the range of 1,500 to 10,000.

Nerad et al and Hagstrom et al are analogous art because they are from the same field of endeavor that is the art using of vinyl-ether functional urethane compounds.

Therefore one of ordinary skill in the art would have found it obvious to use a vinyl-ether terminated urethane oligomer prepared form a polyol having molecular weight of up to 2000 with the above listed diisocyanates

having molecular weights up to at least 10,000 since these are well-known in the art, see Hagstrom et al, in compositions such as those described by Nerad et al. The motivation would have been a reasonable expectation of successfully radiation curing said compositions as suggested by both references in the absence of evidence to the contrary and/or unexpected results.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sanza L McClendon 4/27/07
Examiner

Art Unit 1711

SMC